

Amendments to the claims.

This listing of the claims will replace all prior versions and listings of the claims in the application:

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- 1 1. (original) A method of backing up and restoring data in a computer system, the method  
2 comprising:
  - 3 defining a logical backup object;
  - 4 specifying one or more collapsed extents; and
  - 5 recording details of the collapsed extents.
- 1 2. (original) The method of claim 1 further comprising:
  - 2 starting data movement between a host and the backup and restore system; and
  - 3 monitoring data movement.
- 1 3. (original) The method of claim 2 further comprising:
  - 2 receiving a completed signal; and
  - 3 in response to the completed signal, halting the monitoring of the data movement.
- 1 4. (original) The method of claim 2 further comprising repeatedly defining a logical backup  
2 object, specifying extents, starting data movement, recording details of the specified extents and  
3 monitoring data movement from a first storage unit to a second storage unit until all data is  
4 transferred to the second storage unit.
- 1 5. (original) The method of claim 2 further comprising restoring data by:
  - 2 creating empty objects to restore into;
  - 3 discovering the extents of the empty objects;
  - 4 reading the extents of the backup objects; and
  - 5 specifying a mapping from backup extents to restore extents wherein at least one of the
  - 6 extents corresponds to a collapsed extent.

1 6. (original) A method of backing up data used in a computer system having a client, a primary  
2 storage system and a backup storage system, the method comprising:

3       discovering one or more actual extents on the primary storage system;  
4       collapsing the extents; and  
5       specifying the collapsed extents to the backup storage system.

1 7. (original) The method of claim 6 wherein collapsing the extents comprises:  
2       identifying a pattern in the actual extents discovered on the primary storage system; and  
3       generating a representation of files specified by the actual extents which is more compact  
4       than the representation provided by the actual extents and defining the representation as a  
5       collapsed extent.

1 8. (original) A method of restoring data from a backup and restore system to a host, the method  
2 comprising:

3       creating empty objects on host to restore into;  
4       discovering the extents of the empty objects;  
5       reading the extents of the backup objects; and  
6       specifying a mapping from backup extents to restore extents wherein at least one of the  
7       extents corresponds to a collapsed extent.

1 9. (original) The method of Claim 8 wherein specifying a mapping comprises specifying pairs  
2 of extents which identify the backup extents and the restore extents.

1 10. (currently amended) The method of Claim 8 wherein specifying a mapping comprises:  
2       identifying whether both back up and restore extents isare striped;  
3       in response to both the back up and restore extents being striped, identifying whether  
4 both back up and restore extents have the same column width and column count;  
5       in response to both the back up and restore extents being striped, identifying whether  
6 both back up and restore extents start at the beginning of a stripe element;  
7       compute a number of repetitions; and  
8       generate a single restore extent for the number of repetitions.

- 1 11. (original) The method of Claim 8 further comprising:  
2 monitoring data movement.  
3 receiving a complete signal; and  
4 in response to the completed signal halting the monitoring of the data movement.
- 1 12. (original) A backup and restore system for backing up and restoring files to and from a  
2 primary storage system coupled to a client, the backup and restore system comprising:  
3 a processor for defining a logical backup object;  
4 a collapsed extent processor for specifying collapsed extents;  
5 means for starting data movement; and  
6 an extent recording processor for recording details of collapsed extents.
- 1 13. (currently amended) The system of claim ~~11~~12 further comprising means for logically  
2 restoring a logical element from a segment of storage on the primary storage system.
- 1 14. (original) The system of claim 12 further comprising a processor for specifying a mapping  
2 from backup extents to restore extents wherein at least one of the extents corresponds to a  
3 collapsed extent.
- 1 15. (original) The system of claim 13, wherein said means for logically restoring comprises:  
2 means for creating empty objects to restore into;  
3 means for discovering the extents of the empty objects;  
4 means for reading the extents of the backup objects; and  
5 means for specifying a mapping from backup extents to restore extents wherein at least  
6 one of the extents corresponds to a collapsed extent.
- 1 16. (original) The system of claim 13, wherein the means for logically restoring comprises  
2 means for specifying pairs of extents which identify the backup extents and the restore extents

1 17. (new) A method of restoring data from a backup and restore system to a host, the method  
2 comprising:  
3       creating empty objects on host to restore into;  
4       discovering the extents of the empty objects;  
5       reading the extents of the backup objects; and  
6       specifying a mapping from backup extents to restore extents wherein at least one of the  
7       extents corresponds to a collapsed extent and wherein specifying a mapping comprises:  
8           identifying whether both back up and restore extents are striped;  
9           in response to both the back up and restore extents being striped, identifying  
10          whether both back up and restore extents have the same column width and column count;  
11          in response to both the back up and restore extents being striped, identifying  
12          whether both back up and restore extents start at the beginning of a stripe element;  
13          computing a number of repetitions; and  
14          generating a single restore extent for the number of repetitions.

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